

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. **The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided.** The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Objections

2. **Claim 5** is objected to because of the following informality:

Claim 5 recites "...in the standing state from **the** above" which appears to be a typographical error.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

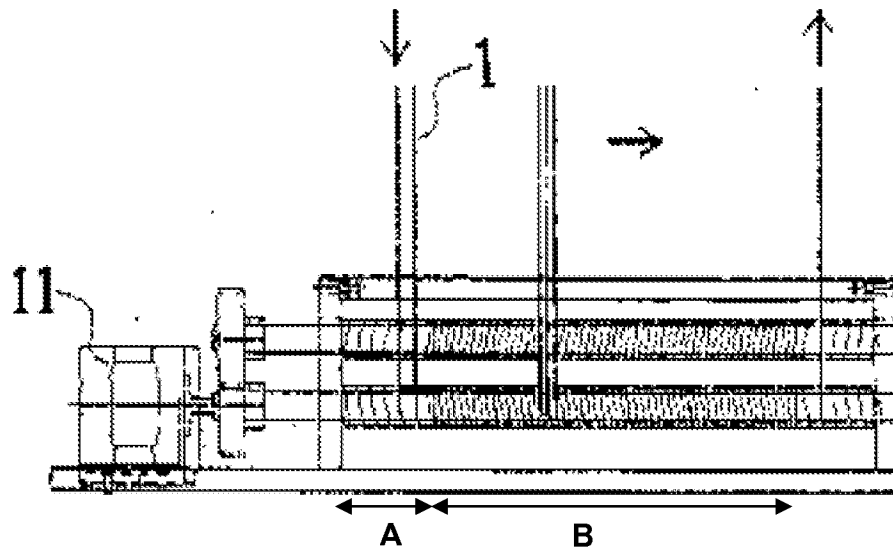
(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 1 & 2** are rejected under 35 U.S.C. 102(b) as being anticipated by Aoki et al. (JP Pub No. 2000235741; Machine Translation).

Consider claims 1 and 2. Aoki et al. teach: a conveying means, which is a transfer means, for transferring optical disks and a cooling process, which is a cooling device as it is part of the device as disclosed; and two or more feed screws for simultaneous rotation to support and place optical disks, whereby there is a changing screw pitch along the feed screws (¶'s [0001], [0002], [0005], [0007] & [0009]). Aoki et al. further teach: the feed screw shaft having a first region portion (A) positioned at a carrying-in side of disk substrates and a second region portion (B) positioned at a side of carrying-out of disk substrates, and a pitch of the threads formed on the first region portion (A) is larger than a pitch of the threads formed on the second region portion (B) (see figure below).

【図 7】

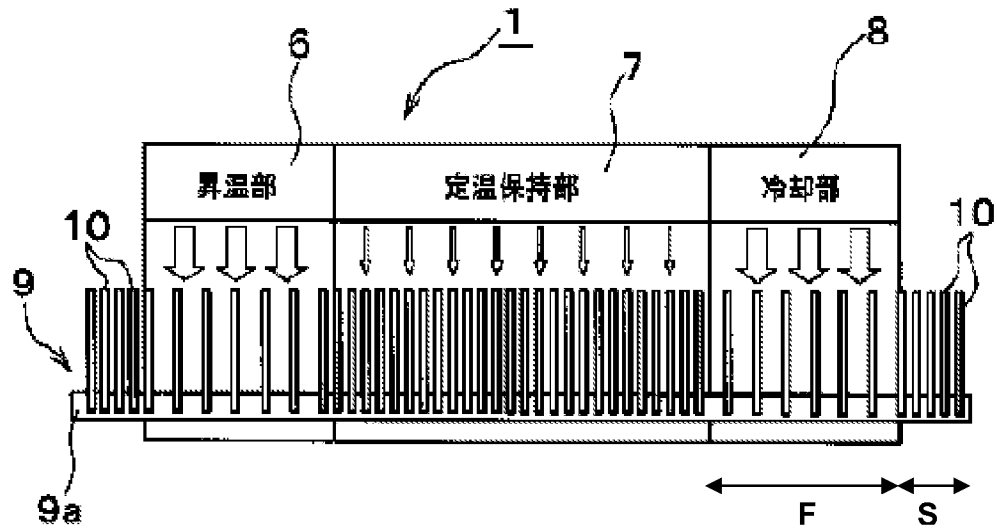


5. **Claims 1, 2, 4 & 7** are rejected under 35 U.S.C. 102(a) as being anticipated by Inatani et al. (JP Pub. No. 2003132590 Machine Translation).

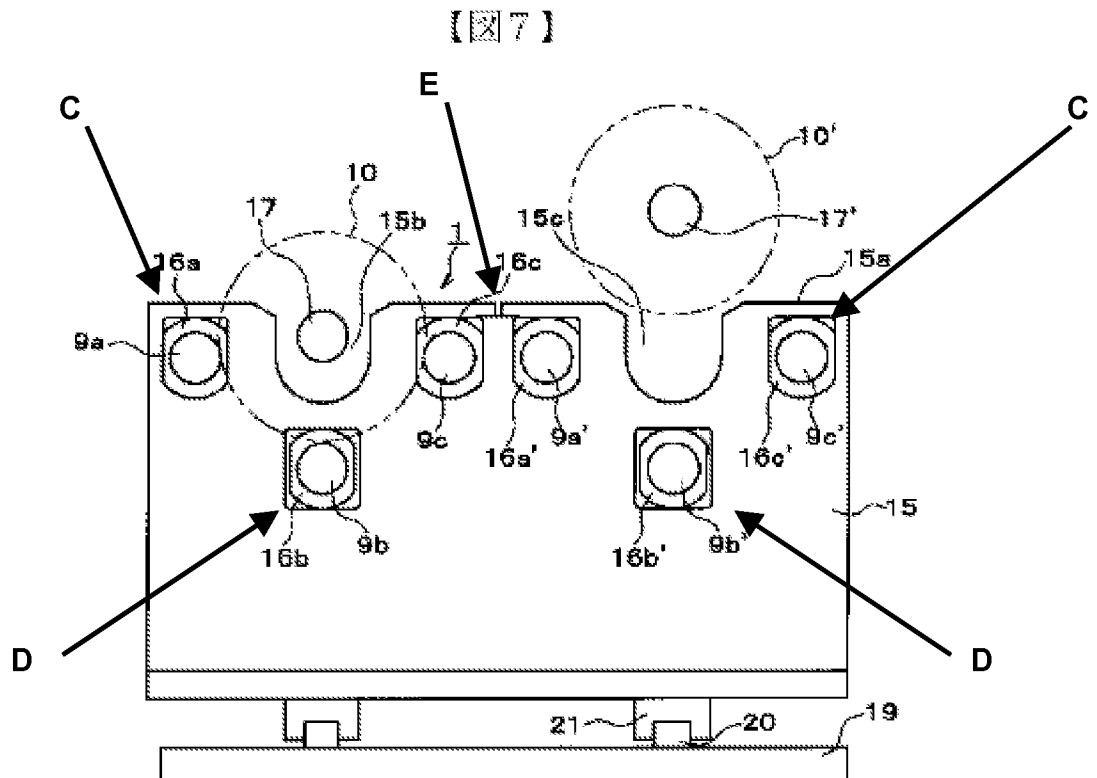
Consider claims 1,2 and 4. Inatani et al. teach shafts, 9a, 9b and 9c, for transfer with a slot spirally formed, which is a transfer means with a feed screw shaft, driven for rotation, which is synchronous rotation since they rotate together, to support and place disk substrates that stand (10) at a plurality of points (¶'s [0014], [0017] & [0018]). The pitch of threads formed on the feed screw shaft differs according to axial positions of the threads such that there is a first region portion (F) and a second region portion (S), where the pitch of the threads is greater on the first region portion (F) than the second region portion

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(S). Inatani et al. further teach that the first region portion (F) is longer than the second region portion (S) (see figure below).



Consider claim 7. Inatani et al. teach that the disks are supported at three points, C, D and E, one of which, (E), is shared by and adjacent disk. Point E is the point between feed screw shafts 9c and 9a' as indicated (see figure below).



Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. **Claims 1-4 & 6** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitano et al. (US Patent No. 6,623,591 B2) in view of Fierkens (US Patent No. 6,000,901).

Consider claim 1. Kitano et al. disclose a cooling conveyor (22) comprising first (22a) and a second (22b) cooling conveyors, which are transfer means for transferring optical disk substrates in a standing state (col. 5, L 7-8 & 15-17; Figs. 1-3)

Kitano et al. fail to disclose a plurality of feed screw shafts, and the pitch of threads formed on the feed screw shaft differs according to axial positions of the threads.

Fierkens teaches: a threaded shaft (20), which is a feed screw shaft, where the pitch of the thread (22) formed on the feed screw shaft (20) differs according to axial positions of the threads (col. 4, L 56-57; col. 5, L23-24 & 38; Fig. 1).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the transfer means disclosed by Kitano et al. to employ the feed screw shaft of varying pitch taught by Fierkens in order to limit the required length of the shaft for a given number of optical disks and thereby conserve space, which is desirable for practical applications.

Kitano et al. as modified above fails to disclose a plurality of feed screw shafts. However, the mere duplication of parts has no patentable significance unless a new and unexpected result is produced *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960). Since the claims of the present invention do not recite a new and unexpected result from the disclosed invention of Fierkens, the subject matter sought to be patented would have been obvious to one of ordinary skill in the art at the time of the invention.

Consider claim 2. Fierkens discloses: the feed screw shaft (20) having a third segment threaded portion (26), which is a first region portion, and a second segment threaded portion (28), which is a second region portion; and a second pitch, which is the pitch of the threads formed on the first region portion (26),

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being larger than a first pitch, which is the pitch of the threads formed on the second region portion (28) (col. 5, L 38-44; Fig. 1)

Consider claim 3. Fierkens discloses: an intermediate region (see Fig. 1) portion whose pitch gradually decreases from the first region portion (26) to the second region portion (28), provided between the first region portion and the second region portion (Fig. 1).

Consider claim 4. Fierkens discloses the first region portion (26) being longer than the second region portion (28) (Fig. 1).

Consider claim 6. Kitano et al. disclose a cooling unit (21) having an air conditioning chamber, which surrounds the standing disks (col. 5, L 19-20). Although a cool air supplying means is not explicitly disclosed, official notice is taken that an air conditioning chamber would necessarily include a cool air supplying means. This is old and well known in the art, and therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the air conditioning chamber as disclosed by Kitano et al. with a cool air supplying means in order for the air conditioning chamber to function effectively and cool the disks.

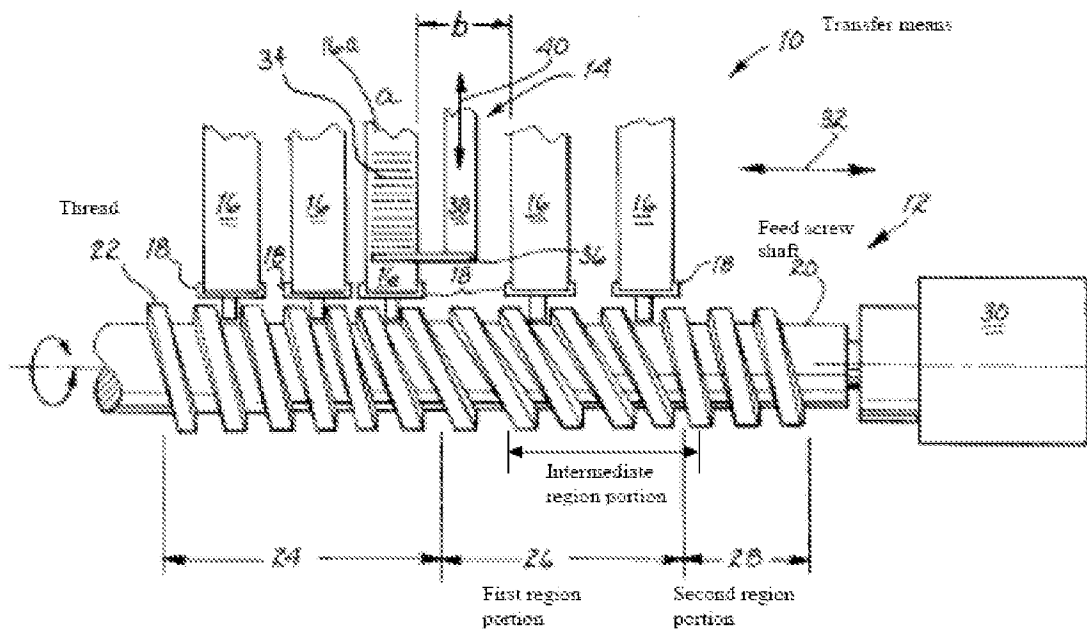


FIG. 1

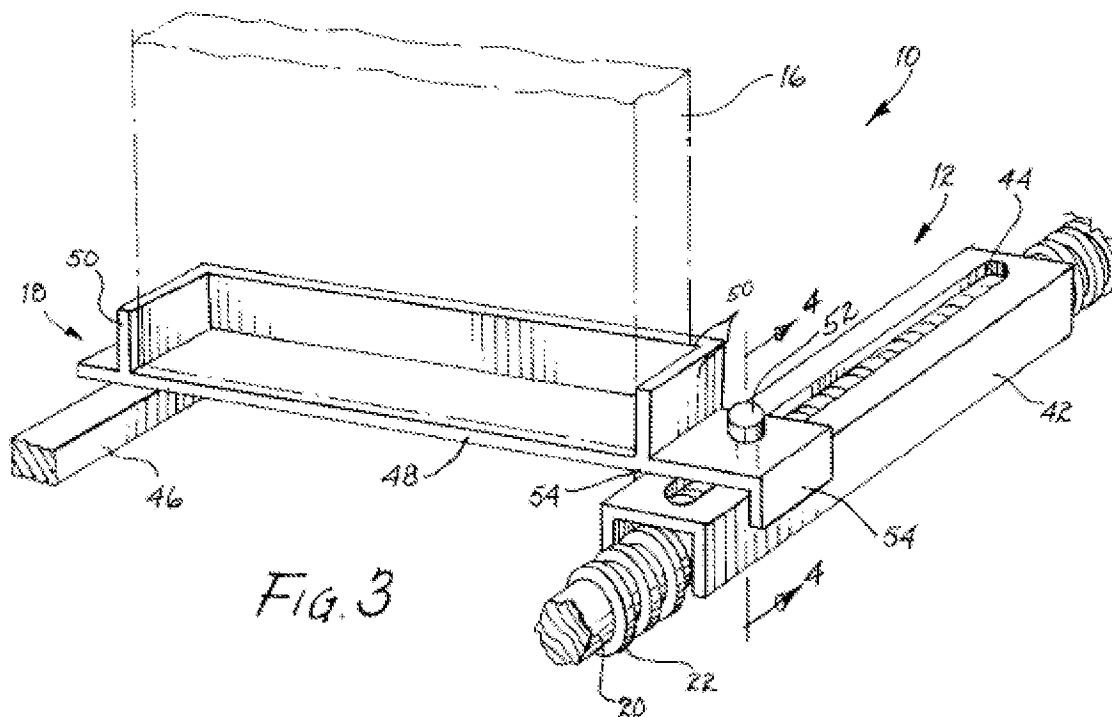


FIG. 3

9. **Claims 5 and 6** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitano et al. (US Patent No. 6,623,591 B2) in view of Fierkens (US Patent No. 6,000,901) as applied to claim 1 above, and further in view of Ipsen (US Patent No. 2,688,808).

Consider claim 5. Kitano et al. as modified above fail to disclose a cool air blowing means.

Ipsen teaches a conditioning apparatus including a fan (13), which is a cool air blowing means, for inducing air flow which flows across the top of the work tray, upon which work pieces may be transferred (col. 1, L 39-40 & 42-45; col. 2, L 45-49; Fig. 1).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Kitano et al. as modified above for transferring optical disks with the conditioning apparatus taught by Ipsen to properly cool the disks, as is necessary to complete the manufacturing process, after the injection molding step as they are transferred through the air conditioning chamber.

Consider claim 6. Kitano et al. as modified above disclose a cooling unit (21) having an air conditioning chamber which covers the disks in a standing state (col. 5, L 19-20).

Kitano et al. as modified above fail to specifically disclose a cool air supplying means for supplying cool air to the air conditioning chamber.

Ipsen teaches a fan (13), which is a cool air supplying means, for inducing air flow to a chamber (10) through which work pieces are transferred (col. 1, L 36-40).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Kitano et al. as modified above for transferring optical disks with the air cool air supplying means taught by Ipsen to provide a means to properly cool the disks, as is necessary to complete the manufacturing process, after the injection molding step as they are transferred through the air conditioning chamber.

10. **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kitano et al. (US Patent No. 6,623,591 B2) in view of Fierkens (US Patent No. 6,000,901) as applied to claim 1 above, and further in view of Cooke (US Patent No. 6,685,043 B1).

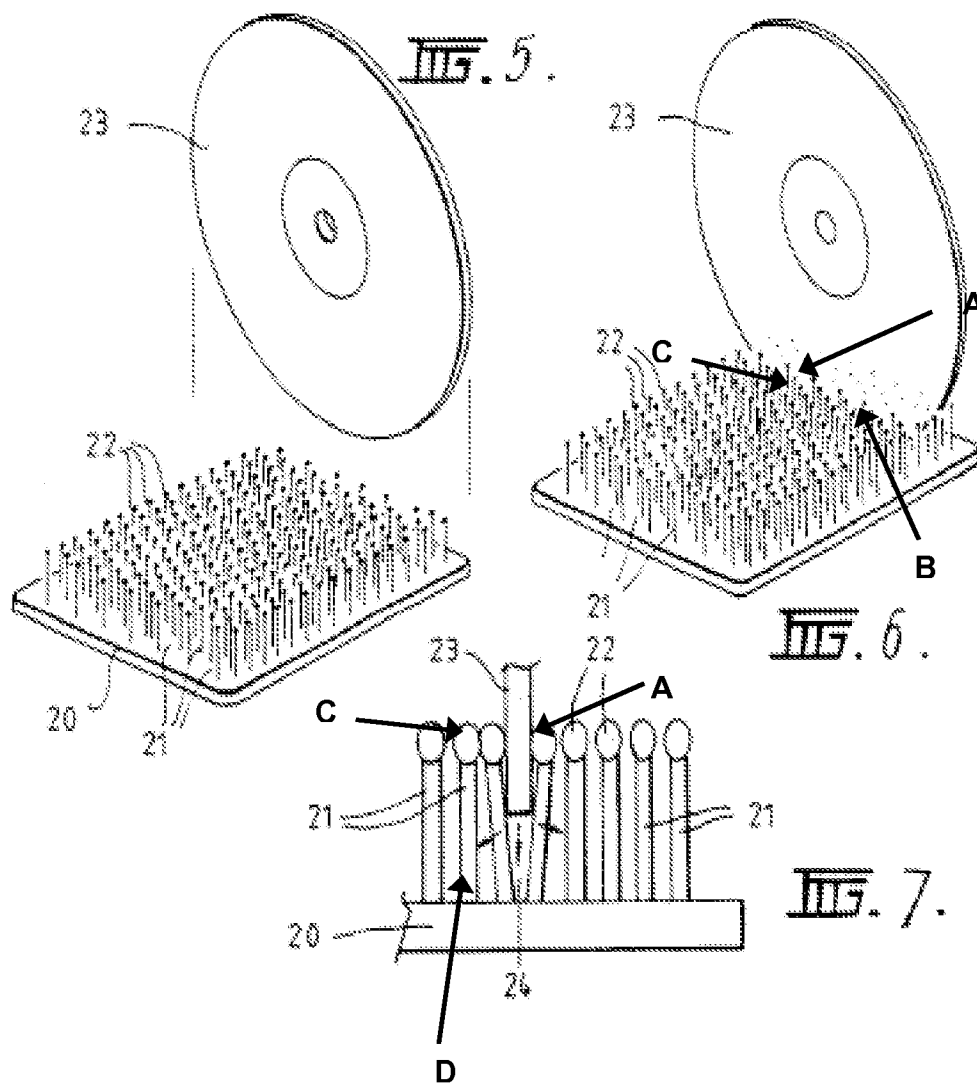
Kitano et al. as modified above fail to disclose the disks supported at three points, one of which is shared by an adjacent disk.

Cooke teaches a holding means for retaining disks (23) to support the disks at three points, (A), (B) and (C), with one of the points, (C), shared by an adjacent disk in space (D) (See Figs. 5 – 7 below). The holding means is adapted to hold a plurality of articles, which are disks in this case (col. 2, L 27-28).

Since Cooke teaches that the holding means may hold a plurality of articles such as disks, if a disk were inserted into space (D), the newly inserted

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disk would share point (C) with disk (23) in supporting both disks. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the transfer means disclosed by Kitano et al. as modified above with the holding means taught by Cooke in order to provide a reliable and compact supporting mechanism for the disks to be vertically oriented as they move through the cooling unit.



Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Dewey et al. (US Patent No. 6,361,263 B1) discloses an apparatus for moving articles using a variable pitch screw.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUSTIN LOFFREDO whose telephone number is (571) 270-7114. The examiner can normally be reached on M - F 7:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marvin Lateef can be reached on (571) 272-5026. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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23 October 2008
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